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ABSTRACT

This paper attempts to provide a brief overview of the diagnosis, etiology, and treatment strategies presently being used with atuistics. Discussion of treatment strategies revolves around the use of operant techniques; from Lindsley and Skinner (1954) to more recent attempts of Lovaas (1976). Generalization and maintenance are also discussed in light of Schreibman's (1975) recent work. In addition, a review of research regarding elimination of maladaptive behaviors is presented. Finally, future directions and guidelines pertaining to treatment strategies with autistic children are covered. Ethical, legal, and cognitive/developmental issues are discussed. (Author)

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Behavioral Management of Autistic Children

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Introduction

Professionals within the mental health field have or will come into contact with an extremely atypical child labeled childhood psychotic. There are over 620,000 children diagnosed within this broad category that includes differential diagnoses (Treffert, 1970). For the purpose of this paper, the specific diagnosis to be considered will be autism. Autism is difficult to distinguish from childhood schizophrenia. Childhood schizophrenia is usually seen as the withdrawal from a previously adequate level of functioning. Autism usually represents inadequate functioning from the beginning. However, reported by Lovaas (1976)....

> "the exact guidelines for diagnosing the child into these various categories are not well known; however, since there is no direct relationship between diagnosis and recommended treatment anyway, and the relationship between etiology (causes) and diagnosis is also not well understood, we do not have to concern ourselves a great deal about exactly what to call these children." (p. 186)

This paper will adhere to a behavioral model of interpretation. The behavioral model considers the locus of the autistic childs' problem to be external and observable. The problem is viewed as a direct consequence of environmental contingencies an antecedent events. Labels are considered meaningless; rather the exactness of a behavioral description is more important. Further, autism is not considered to be an internal emotional disturbance or conflict. This paper will present a brief overview of the historical perspective of treatment approaches, the various behaviors exhibited by children

labeled autistic and finally future alternatives and guidelines.

Diagnosis and Etiology

Historically, the description of autism can be traced back to days of Hippocrates and other Greek physicians. The designated "devine diseases" to be those severe and unexplainable behavior problems ranging from convulsions to strange and unpredictable behavior (Delcatto, 1974). Kanner was the first to use the term in the medical literature. Today, a multifaceted diagnosis includes: deafness, aphasia, mental retardation, brain damage, psychoneuroses, a lack of neurological dysfunction, personality disorder with severe behavior disturbances (Kozloff, 1973; Lovaas, 1976).

The major manifestations of autistic behavior can be ordered into four categories: disorders of speech and language, disorders of relationship, disorders of emotions and disorders in physiological functions. A brief description of each category follows.

Disorders of Speech and Language. Generally, there is a lack of speech for communication. Behaviors subsumed under this category include: mutism, unintelligible vocalizations, the absence of speech functions such as inflection to denote mood, delayed echolalia, language that is poorly connected and the use of neologisms without filling in the referents.

Disorders of Relationship. The behaviors under this category might include a lack of reality referrent behaviors, lack of attachment to other people (no eye contact or visible response to their presence), a narcissitic attachment, affect isolation (indifference to siblings), a lack of object relations (Kozloff, 1973; Lovaas, 1976).

Disorders of Emotions. This category perhaps includes the widest variability of descriptions. Lovaas (1976) and Kanner (1944) among others, report the following behaviors: violent behavioral outbursts, tantrums, especially

when the immediate environment changes, a lack of direction of such tantrums, self-stimulation (headbanging, incessant rocking of their bodies, flapping their arms), self-mutilatory behaviors (biting themselves, banking their heads against a hard object, scratching, kicking) not sleeping at night. Maintenance of sameness through ritualistic and stereotypic behaviors is also prevalent.

Disorders in Physiological Functions. Kanner (1944), Bender (1947) and Lovaas (1976) have speculated about the physiological disabilities that confront the autistic child. For example, they noted the autistic child exhibited an abnormal pattern of motility (conforming easily to person in contact with them). Bender observed an "uncertain control of the facial muscles which lead to grimaces and other oral mannerisms." Lovaas has also hypothesized a sensory deficit. He noticed that, "one may move directly in front of the child, smile, talk to him, yet he will act as if no one is there." In essence his visual field is impaired. Other theories discuss implications of a suspected non-functioning reticular system (Rimland, 1965; Hutt, 1965; Retivo, 1976). They suggest the autistic child is over aroused and is unable to selectively attend to his environment. There has been little empirical support from EEG records to reinforce this hypothesis.

A discussion of etiology must remain at the theoretical level. Parents have been hypothesized as the causative agents of autism. However, the applicability of such a hypothesis lacks generalizability and empirical support. Central nervous system dysfunction and sensory deprivation also have been suggested. This has been clinically derived but empirically unsubstantiated. Still, others have speculated that as a consequence of a particular learning history, autistic like behaviors are acquired. For example, prolonged extinction and intermittent reinforcement may inhibit the acquisition of speech and social behaviors. In addition, secondary reinforcers usually minimally affect the behaviors.

An examination of the literature will reveal only speculation about the etiology of autism and the exact definition of such a label. Agreement can not be expected when there are many criteria. From this basis research has progressed; not with a precise, lucid picture of the presenting problem, but only with behavioral treatments and remedial strategies.

Treatment Strategies

The diversity of behaviors and resulting empirical evidence are far too numerous to cite here. Rather, acquiring and expanding a socially related behavioral repertoire will be considered from the perspective of (1) establishing, maintaining, and generalizing behaviors with positive contingencies, and (2) eliminating maladaptive behaviors.

The use of operant techniques with autistic behaviors is a recent enterprise. Early studies were not concerned with therapeutic changes. They attempted to demonstrate behavioral control via certain techniques. Lindsley and Skinner (1954) first reported successfully using such a model for the experimental analysis of a variety of bizarre behaviors. Later Ferster and DeMyer (1962) demonstrated control of an autistic child's limited repertoire of behavior through positive reinforcement. They both utilized a conditioned reinforcer to sustain and widen the behavioral repertoire in an artificial environment. Further, Davison (1964) refuted beliefs that autistic children responded exclusively to primary reinforcers. While initially using primary reinforcers, Davison trained paraprofessionals (undergraduates) to condition the autistic children. As a result of this individualized conditioning approach, the children learned to pay attention to adults as secondary reinforcers and obey their instructions. These children became more manageable as their response patterns changed. Wolf, Risley and Mees (1964) extended these techniques to shape a $3\frac{1}{2}$ year-old autistic boy to wear glasses. Successive approximations with conditioned reinforcers

(under deprivational control) were used to approach the final goal of wearing glasses in many environments for a sustained duration. Secondary reinforcers have several advantages:

A. They derive the same effects of several reinforcers.

B. They do not need special environments for dispensing.

C. Are usually not subject to rapid satiation (see Lovaas, 1977)

D. They add few distracting stimuli to the environment (Margolies, 1977).

Some therapeutic gains also have been demonstrated with other positive techniques. For example, Lovaas (1967) demonstrated that imitation learning was effective when paired with external reinforcers; he found that the autistic child more accurately observed and performed the therapist's behaviors more accurately. Modeling, with reinforcement, has been also used to terminate stereotypic behaviors and establish functional skills and behaviors (Schreibman, 1975; Lovaas, 1971; and Hewett, 1965). One difficulty that still remains is autistic children's unresponsiveness to some external stimuli. This does create some problems with imitation learning and it's effects should be empirically evaluated.

Generalization and Maintenance

Lovaas, et al., (1971), Schreibman (1975), Rincover and Koegel (1975), and Koegel and Schreibman (1974) have investigated the use of prompting and the transfer of new learning. Lovaas, et al., (1971) tried to determine the functional value of stimuli presented across various modalities. He found that:

1. Autistics responded to one presented cue only, and

2. the data failed to support that any one sense modality is impaired. Rather it was hypothesized stimulus overselectivity was occurring. He suggested the lack of learning in autistic children can be explained by stimulus overselectivity. The autistic child may block on either the conditioned

stimulus (CS) or the unconditioned stimulus (UCS) when learning. Learning or performance is then impaired. Koegel and Schreibman (1974) have also assumed that the flattened affect or lack of emotion may result from autistic children failing to acquire the appropriate emotional connotations due to stimulus overselectivity or blocking in the classical conditioning paradigm. The acquisition of the emotionality of a word, understanding the connotations of voice inflections, or facial grimaces requires attention and functional control of multiple stimuli. The autistic child is highly distractible and probably cannot attend to these stimuli.

Schreibman (1975) and Rincover and Koegel (1975) have also addressed themselves to stimulus overselectivity. Autistic children respond well to prompts, but often fail to transfer because of difficulty in responding to prompts simultaneously presented. This provides important implications for prompts that are presented in an operant paradigm and expected to achieve stimulus control. Schreibman (1975) tested the effectiveness of a visual prompt (pointing a finger) to teach discrimination to autistic children. Two types of stimuli were developed:

1. An extrastimulus prompt, where a stimulus was added to guide a child's response, and

2. within stimulus prompt, where the prompt was built into the training stimulus.

Thus the child only had to respond to one relevant stimulus at a time. Her findings are important for any type of treatment with autistic children.

A. The children usually failed to learn the discriminations without a prompt.

B. The children always failed to learn a previously learned discrimination when the extra stimulus prompt was employed; they usually did learn when the within stimulus prompt was employed.

The implications for eventual generalizability (transfer) is important. Extraneous stimuli whether they are prompts or any other environmental cues may

retard learning because the autistic child may be responding to an irrelevant cue and not to the training stimuli. Rincover and Koegel (1975) support this and further state that because autistic children respond to incidental stimuli and are overselective, the therapist and other change agents must be aware of achieving restrictive stimulus control.

Research within the socialization area is presently concentrating on antecedent conditions in an effort to arrive at appropriate behaviors and resultant positive consequences. However, because the autistic child is multiply handicapped, the researcher and practitioners approaching this problem must be aware of the complexity of the presenting problems and adjust their techniques as needed. It is apparent that the research of Lovaas, Schreibman, Koegel and Rincover is approaching this end.

Fliminating Maladaptive Behaviors

Besides lacking functional behaviors, autistic children usually exhibit some form of maladative and inappropriate behaviors. These include: self-injurious behaviors, self-destructive behaviors, aggressive, disruptive and trantrum behaviors. There have been many attempts to explain self-stimulatory behaviors (SIB), masochism, auto aggression, self-aggression, self-destructive behavior. Tate and Baroff (1966) suggest SIB is more encompassing and is composed of a series of self-injurious responses that are repetitive with no obvious reinforcers. These behaviors are considered to be an identifying characteristic of autism and have no functional effects on the environment.

The presummed intrinsic reinforcement of self-stimulatory behavior is not directly accessible to therapist intervention. The occurrence of competing behaviors that reduce self-stimulation can be increased by therapeutic methods. Drugs, primary reinforcers, enhanced environmental stimulation, and pain-shock reduction coupled with the strengthening of competing behaviors

have been used to reduce SIB and self-stimulation. No one method has as its treatment outcome: immediacy, completeness, or permanence of reduction of the behaviors.

It has been demonstrated that SIB's and tantrums may be partially maintained by social contingencies. Therefore, time out and extinction have been shown to be effective in eliminating these behaviors. Withdrawing physical or social contact has been shown to decrease these behaviors (Lovaas, 1965; Tate and Baroff, 1966; and Wolf, Risely and Mees, 1964).

Overcorrection is a relatively new aversive technique used to decrease autistic-like behaviors (Foxx and Arzin, 1973). Overcorrection attempts to:

1. Overcorrect the environmental effects of an inappropriate act, and
2. require the disruptor to intensively practice overly correct forms of relevant behavior.

Foxx and Arzin specifically concentrated their efforts on head weaving, hand clapping and mouthing objects. These behaviors were eliminated through application of the overcorrection. A normal verbal reprimand followed by an occasional application of the overcorrection procedure was sufficient to maintain the therapeutic effect in other environments.

Overcorrection provides a viable alternative for treatment of autistic like behaviors. By arranging annoying (aversive) consequences for each instance of self-stimulation, the change agent is providing negative reinforcement (removal of an aversive stimuli) as well as positive reinforcement for outward directed behavior. An environment that will ensure a high frequency of positive reinforcement for continuing outward directed activities will presumably be incompatible with self-directed activities. The use of extinction and overcorrection must be cautiosuly employed. The existing potentiality of mutilation and injury is high when using extinction (effects of the extinction curve) or overcorrection. A brief punishment consequence as an adjunct

to either extinction or overcorrection procedures may suffice. In addition differential reinforcement for competing response patterns may help. (Luselli, 1976).

It has been demonstrated that physical punishment in the form of a painful electric shock, immediately supresses SIB's and other maladaptive behaviors. The effects of shock are usually selective in diverse settings and interpersonal situations. Most researchers have hypothesized some beneficial effects of punishment by shock:

1. A more stimulating environment was able to be provided because the SIB's did not necessitate physical restriction of the environment or child.

2. The children were able to learn by forming discriminations in various settings. In other words the shock was situation and person specific.

3. Shock immediately increased socially directed behaviors and simultaneously decreased inappropriate behaviors. For example, research demonstrates that approach behavior and affection towards adults increases to avoid shocks. Thus, a negative reinforcement paradigm is instituted. After adults had been associated with shock reduction, more positive behaviors are directed toward them from the autistic children.

4. Social reinforcement may be useful to maintain SIB. Therefore, social reinforcement should retain its power to build incompatible behaviors after the punishment procedures. One focus has been to instruct the child to respond more appropriately to the environment.

Research has demonstrated that most forms of punishment (extinction, overcorrection and physical punishment) produced a general arousal of the central nervous system (CNS) with resulting increased attention to the external environment. The comparison of least restrictive treatment versus the effects of self-injurious behaviors must be made. What is the most appropriate alternative with these behaviors.

Future Directions and Guidelines

1. There are many ethical and legal issues surrounding the use of physical punishment (shock). Lovaas (1965) submitted

that "psychological and physical pain is as prevalent in human relationships as pleasure". Despite the pervasiveness of pain in our daily lives and its possible necessity for maintaining or modifying some behaviors, psychologists and other professionals have shied away from it and condemned it for therapeutic purposes. It is obviously a moral dilemma rather than a scientific one. Kanfer and Phillips (1970) submit that non-contingent aversive stimulation is most likely helpful only if the child knows or can learn the appropriate behaviors to terminate shock. Otherwise, the aversive stimulation will not help the child discriminate between appropriate and inappropriate behaviors. The question that must be answered empirically is: Can the autistic child learn the appropriate shock reducing responses?

2. Another ethical issue is the utilization of the natural environment by a variety of persons, for a variety of target behaviors. Application of behavioral treatment in the naturalistic setting is necessary, especially when applying aversive consequences. There will be a more rapid and complete suppression of the naturally occurring behaviors than in an artificial environment (clinical setting), (Tharp and Wetzel, 1969; Rincover and Koegel, 1975). Therefore, future treatments should attempt to use natural contingencies in the child's natural environment. This seems reasonable given our knowledge of secondary reinforcers. Classroom training programs also might be one source of natural contingencies, (Luselli, Helfen, Reisman and Pemberton, 1977).

3. While there are no legal precedents for the use of aversive stimuli with autistic children, Martin (1975) suggests several legal guidelines that should be followed:

> "aversive therapy might be used where other therapy has not worked, where it can be administered to save the individual from immediate and continuing self-injury, when it allows freedom from physical restraints which would otherwise be continued, when it can be administered for only a few short instances and when its goal is to make other nonaversive therapy possible. Such an aversive design certainly requires consent from a guardian and <u>immediate</u> review of results after <u>each</u> separate administration." (p.77)

It is apparent from the above statement that aversive therapy should be the treatment of choice only when the above conditions are satisfied, and not used to reinforce the change agent. Judicious applications is strongly advised when considering it as a possible management strategy with autistic children.

4. Change within the autistic child's behavioral repertoire is a complex question. Autistic children left to their own devices are highly selective learners who obtain gratification by bizarre and inappropriate means. They tend to set their own

limits and consequently learn a restricted number of social skills. A consistent and direct intervention system is a necessary requirement of future strategies. Considerations for future research should procede along maintenance lines. Rincover and Koegel (1975) state the problem with existing remedial strategies with autistic children is no longer transfer, but maintenance of such transfer. Why not consider maintenance of treatment gains when dealing with autistic children? This option would necessitate training other change agents in effective behavioral techniques to deal with the autistic child in the natural environment. Maintenance and generalization might be maximized when parents and other paraprofessionals are trained in behavioral techniques. This training would facilitate the goal of programming the environment. These change agents might also teach new behaviors in the home and other environments, (Nordquist and Wahler, 1973; Moore and Baily, 1973). Paraprofessionals are readily available from resources such as colleges, universities, and high schools. In addition, success has been demonstrated with the above change agents (Moore and Pear, 1970). There are also training manuals available by Patterson and Guillon (1968) for parents of autistic children, (Kolzoff, 1973). Future research might establish the exact training components and empirically assess their effectiveness. At this point, systematic and field tested procedures are needed to help train parents.

5. Another future remedial and empirical trend with respect to maintenance might be the development of classroom treatment packages. Luselli, et al., (1977) found that training pre-academic skills might offer a comprehensive system of monitoring and maintaining different behavioral gains. This would also help to meet the least restrictive treatment requirements. In addition, therapeutic efforts can be simultaneously focused on a different problem behavior. Maintenance should also be enhanced because the treatment does not have to be programmed across as many different stimulus situations. These and other treatment packages should be empirically assessed as to their effectiveness. What are the social and academic behaviors that are incompatible with maladaptive behaviors.

6. Cognitive and developmental guidelines are needed to help early identification and remedial strategies. As with most other handicapping conditions, behavioral procedures are needed for valid and reliable identification. This would require comprehensive cognitive and developmental analyses to determine the behaviors present or absent during particular developmental stages. Comparative research might establish the reliability and validity of such behavioral guidelines.

Behavior therapy with autistic children is relatively novel and is constantly undergoing revision. What must be kept in the forefront are the issues of accountability and maintenance. This issue must be confronted by behaviorally oriented researchers and practioners in an empirical fashion.

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